FIG. 1

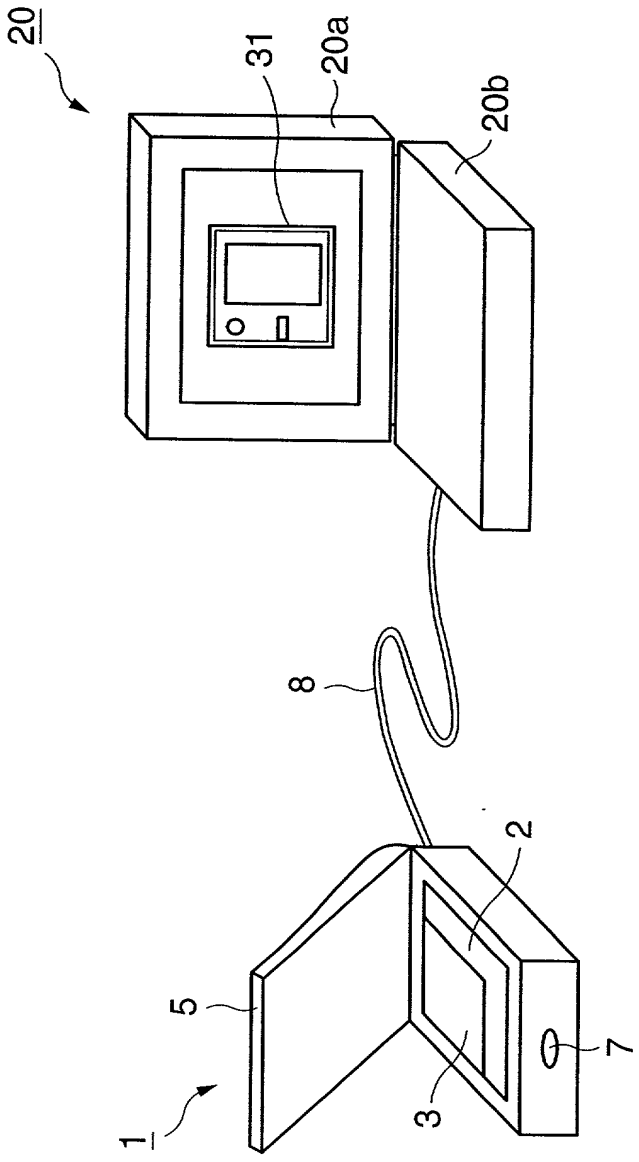


FIG. 2

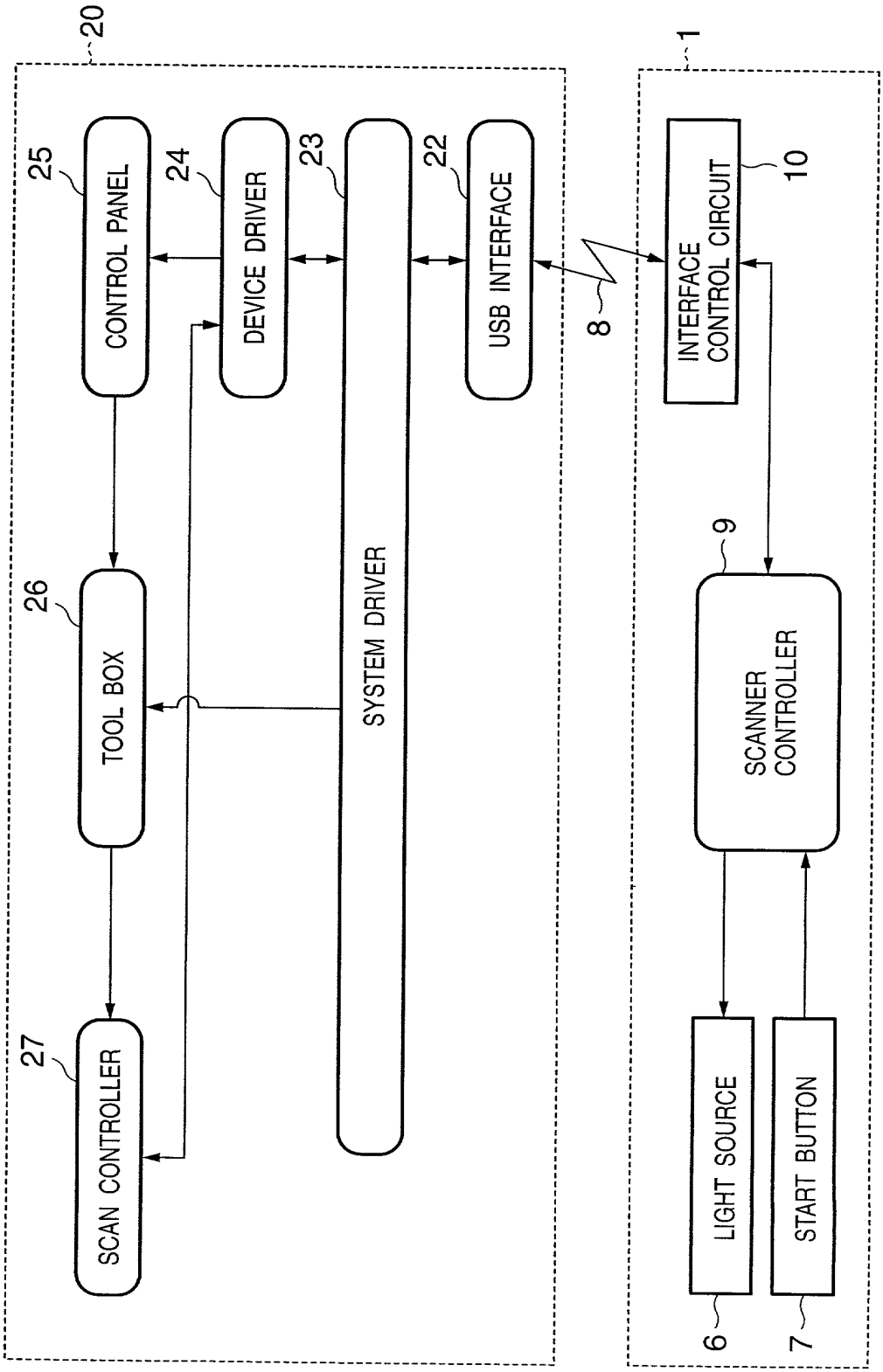

20
1
25
CONTROL PANEL
24
DEVICE DRIVER
23
SYSTEM DRIVER
22
USB INTERFACE
8
INTERFACE CONTROL CIRCUIT
10
26
TOOL BOX
9
SCANNER CONTROLLER
27
SCAN CONTROLLER
LIGHT SOURCE
6
START BUTTON
7

FIG. 3

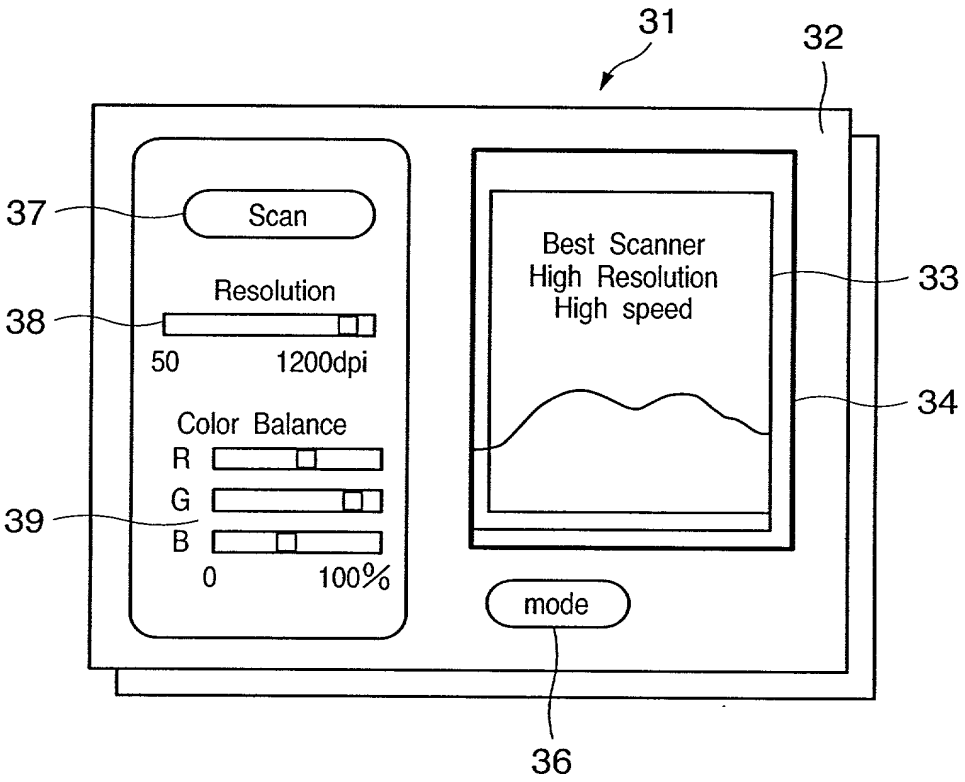

31
32
37
Scan
Resolution
38
50
1200dpi
Color Balance
R
G
39
B
0
100%
Best Scanner
High Resolution
High speed
33
34
mode
36

FIG. 4

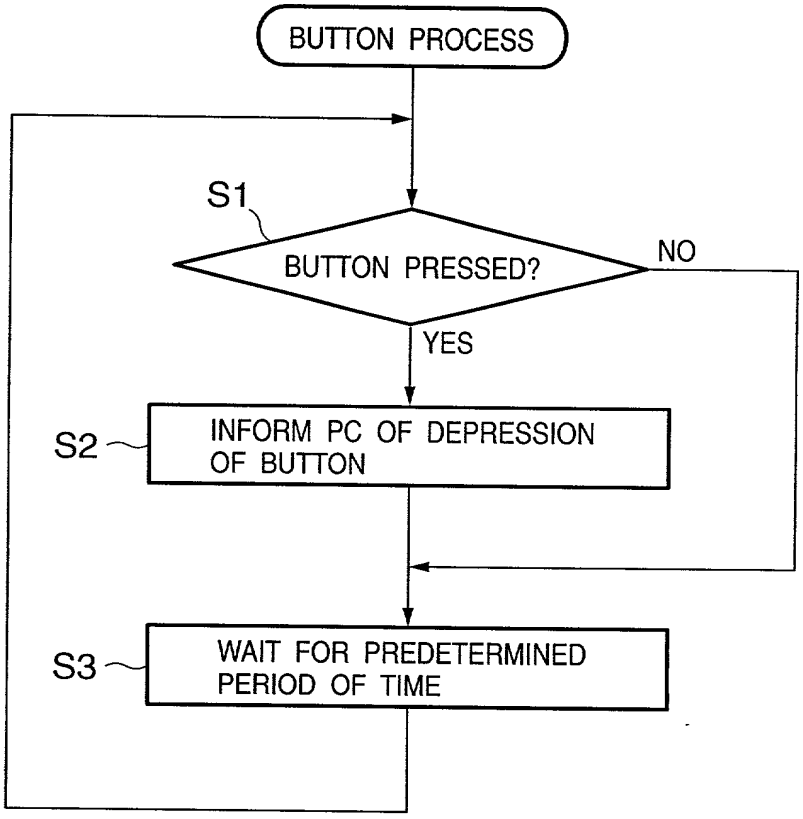

BUTTON PROCESS
S1
BUTTON PRESSED?
NO
YES
S2
INFORM PC OF DEPRESSION OF BUTTON
S3
WAIT FOR PREDETERMINED PERIOD OF TIME

FIG. 5

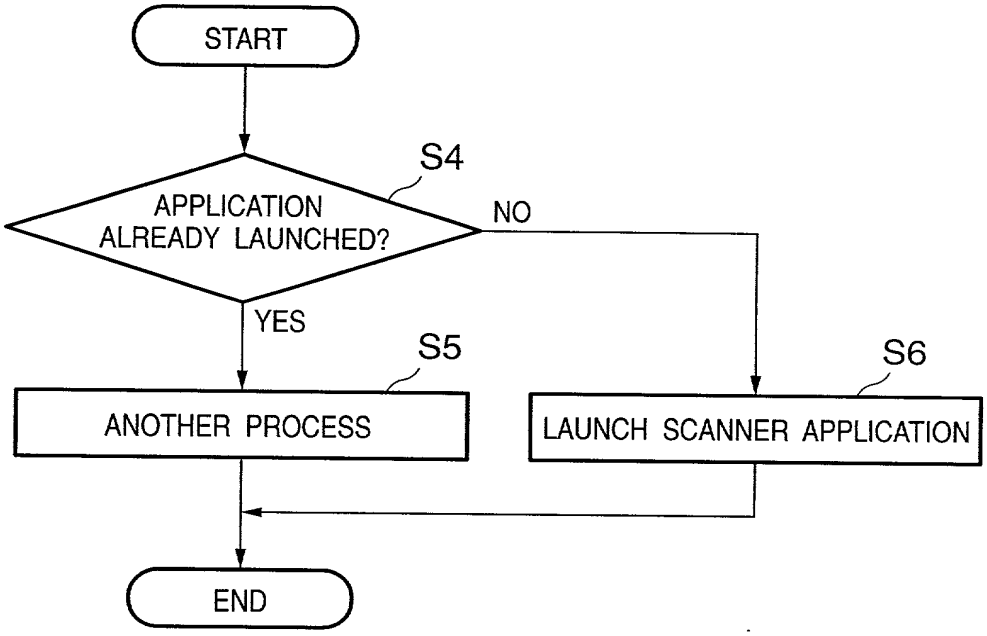

START
S4
APPLICATION ALREADY LAUNCHED?
NO
YES
S5
ANOTHER PROCESS
S6
LAUNCH SCANNER APPLICATION
END

FIG. 6

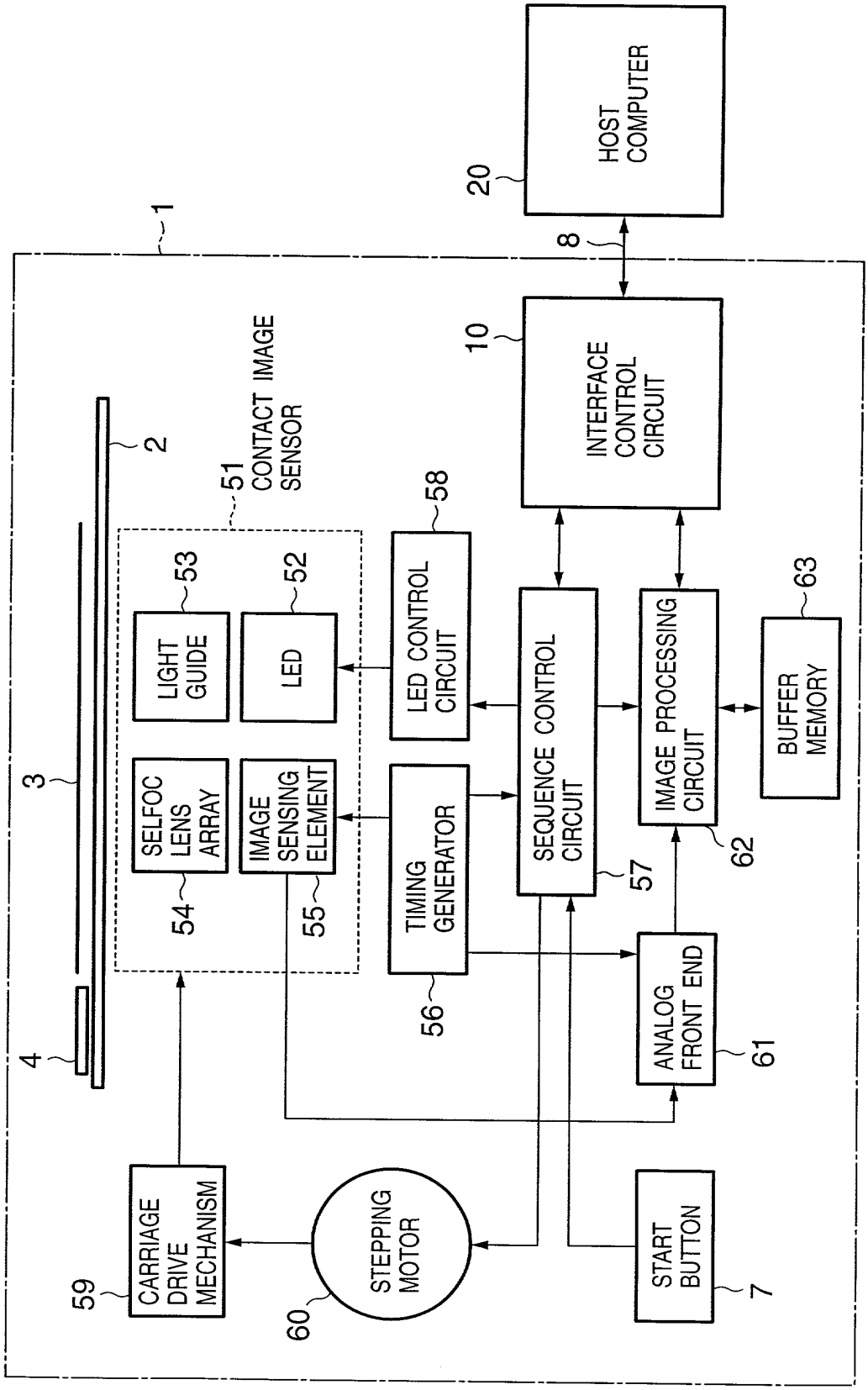

HOST COMPUTER
20
1
8
INTERFACE CONTROL CIRCUIT
10
CONTACT IMAGE SENSOR
51
2
3
4
LIGHT GUIDE
53
LED
52
SELFOC LENS ARRAY
54
IMAGE SENSING ELEMENT
55
LED CONTROL CIRCUIT
58
TIMING GENERATOR
56
SEQUENCE CONTROL CIRCUIT
57
IMAGE PROCESSING CIRCUIT
62
BUFFER MEMORY
63
ANALOG FRONT END
61
CARRIAGE DRIVE MECHANISM
59
STEPPING MOTOR
60
START BUTTON
7

FIG. 7

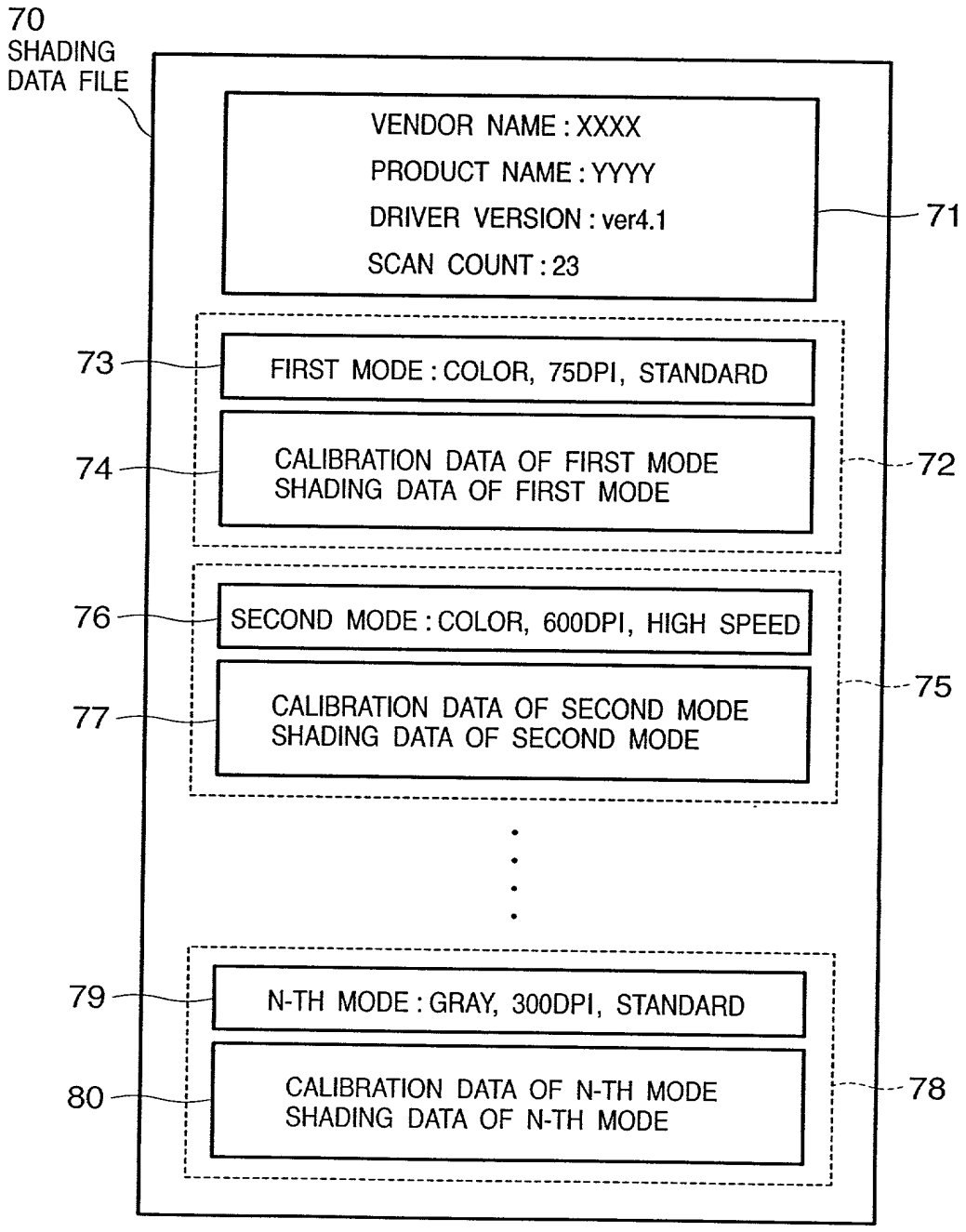

70
SHADING
DATA FILE
VENDOR NAME : XXXX
PRODUCT NAME : YYYY
DRIVER VERSION : ver4.1
SCAN COUNT : 23
71
73
FIRST MODE : COLOR, 75DPI, STANDARD
74
CALIBRATION DATA OF FIRST MODE
SHADING DATA OF FIRST MODE
72
76
SECOND MODE : COLOR, 600DPI, HIGH SPEED
77
CALIBRATION DATA OF SECOND MODE
SHADING DATA OF SECOND MODE
75
79
N-TH MODE : GRAY, 300DPI, STANDARD
80
CALIBRATION DATA OF N-TH MODE
SHADING DATA OF N-TH MODE
78

FIG. 8

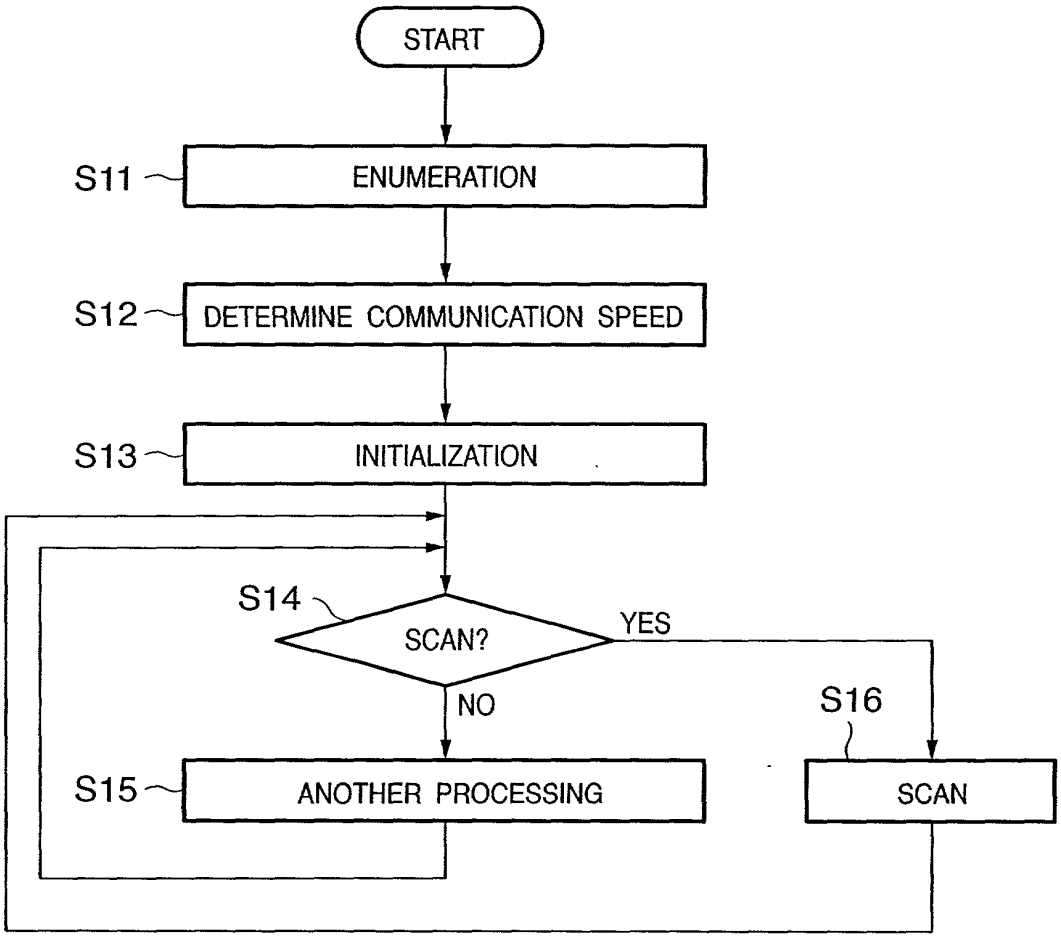

START
S11
ENUMERATION
S12
DETERMINE COMMUNICATION SPEED
S13
INITIALIZATION
S14
SCAN?
YES
NO
S15
ANOTHER PROCESSING
S16
SCAN

FIG. 9

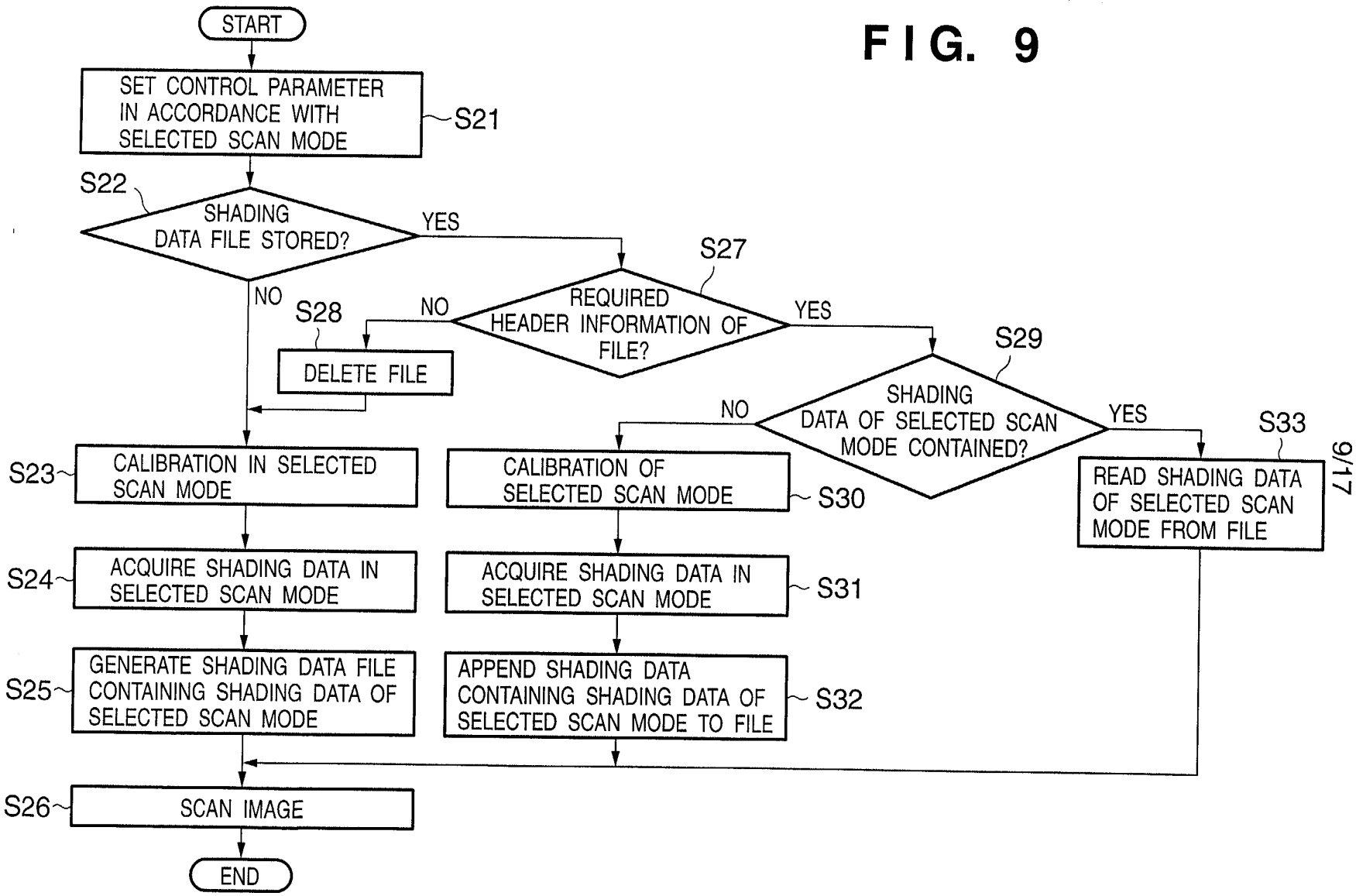

START
SET CONTROL PARAMETER IN ACCORDANCE WITH SELECTED SCAN MODE
S21
S22
SHADING DATA FILE STORED?
YES
NO
S27
REQUIRED HEADER INFORMATION OF FILE?
NO
YES
S28
DELETE FILE
S29
SHADING DATA OF SELECTED SCAN MODE CONTAINED?
NO
YES
S33
S23
CALIBRATION IN SELECTED SCAN MODE
CALIBRATION OF SELECTED SCAN MODE
S30
READ SHADING DATA OF SELECTED SCAN MODE FROM FILE
S24
ACQUIRE SHADING DATA IN SELECTED SCAN MODE
ACQUIRE SHADING DATA IN SELECTED SCAN MODE
S31
S25
GENERATE SHADING DATA FILE CONTAINING SHADING DATA OF SELECTED SCAN MODE
APPEND SHADING DATA CONTAINING SHADING DATA OF SELECTED SCAN MODE TO FILE
S32
S26
SCAN IMAGE
END

FIG. 10

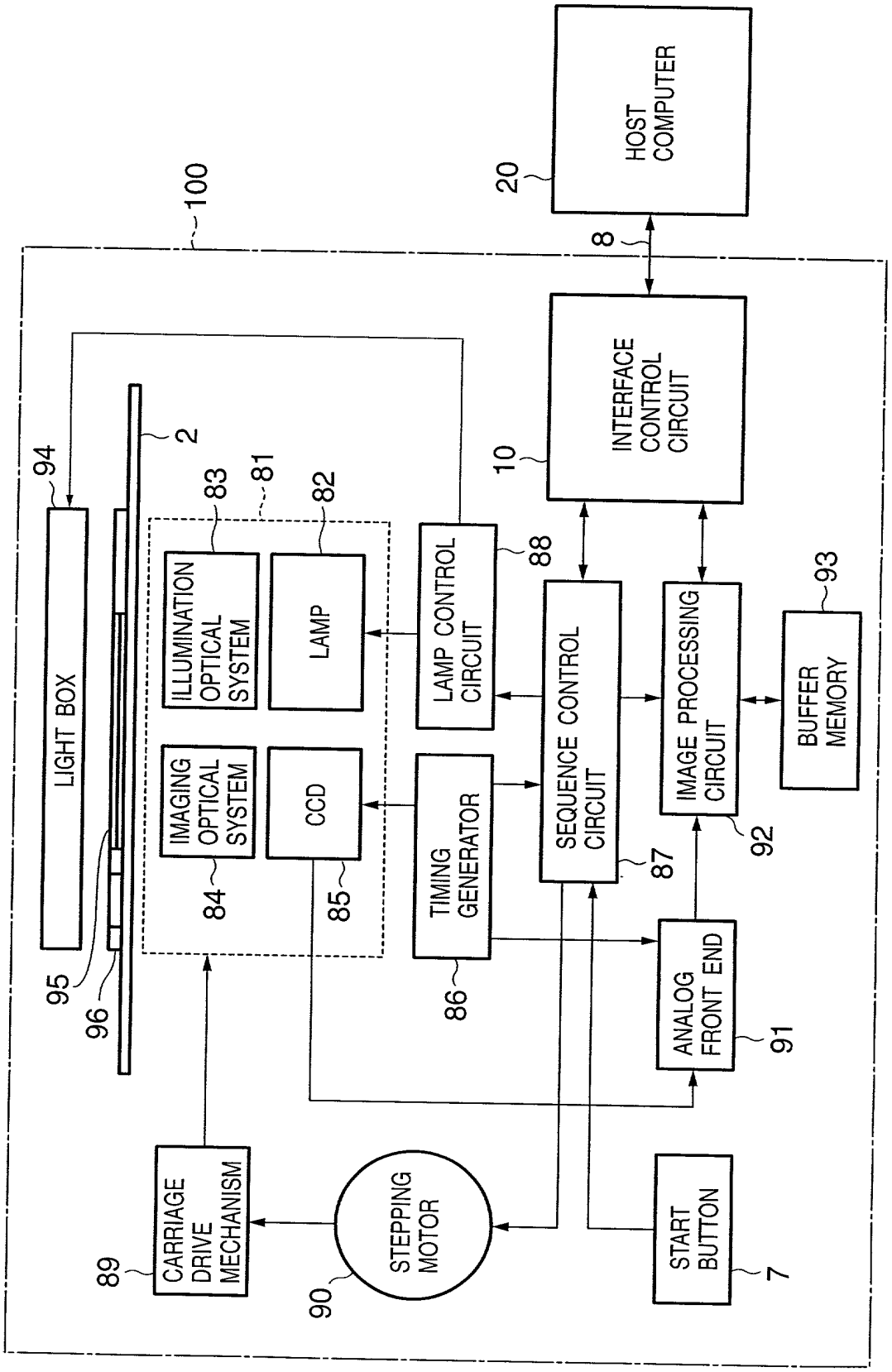

HOST COMPUTER
20
100
8
INTERFACE CONTROL CIRCUIT
10
LIGHT BOX
94
2
ILLUMINATION OPTICAL SYSTEM
83
81
LAMP
82
LAMP CONTROL CIRCUIT
88
SEQUENCE CONTROL CIRCUIT
87
IMAGE PROCESSING CIRCUIT
92
BUFFER MEMORY
93
IMAGING OPTICAL SYSTEM
84
CCD
85
TIMING GENERATOR
86
95
96
ANALOG FRONT END
91
CARRIAGE DRIVE MECHANISM
89
STEPPING MOTOR
90
START BUTTON
7

FIG. 11

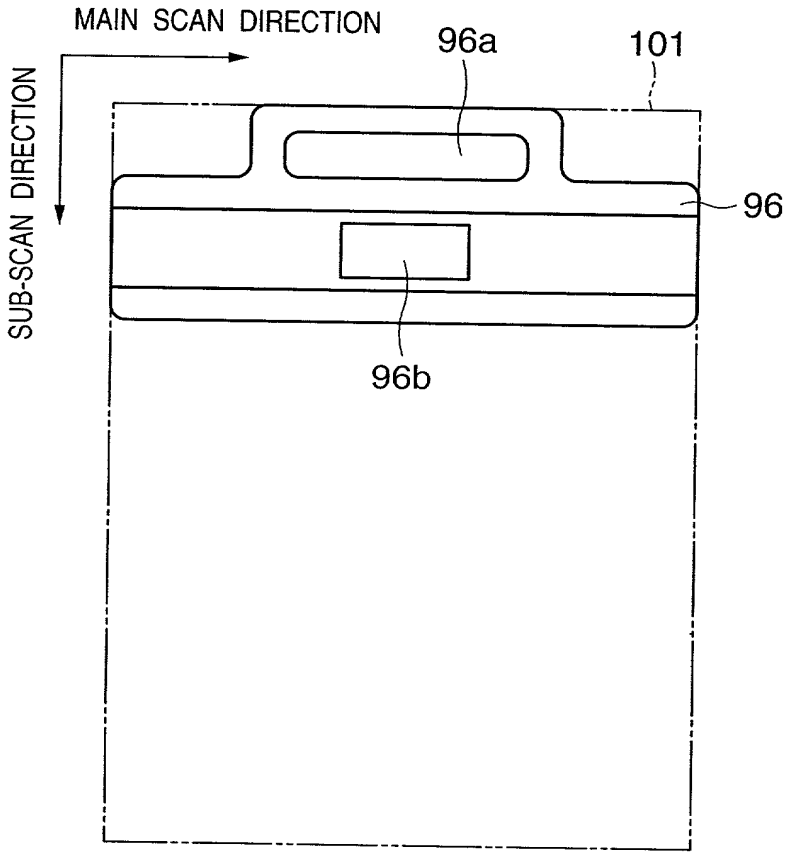
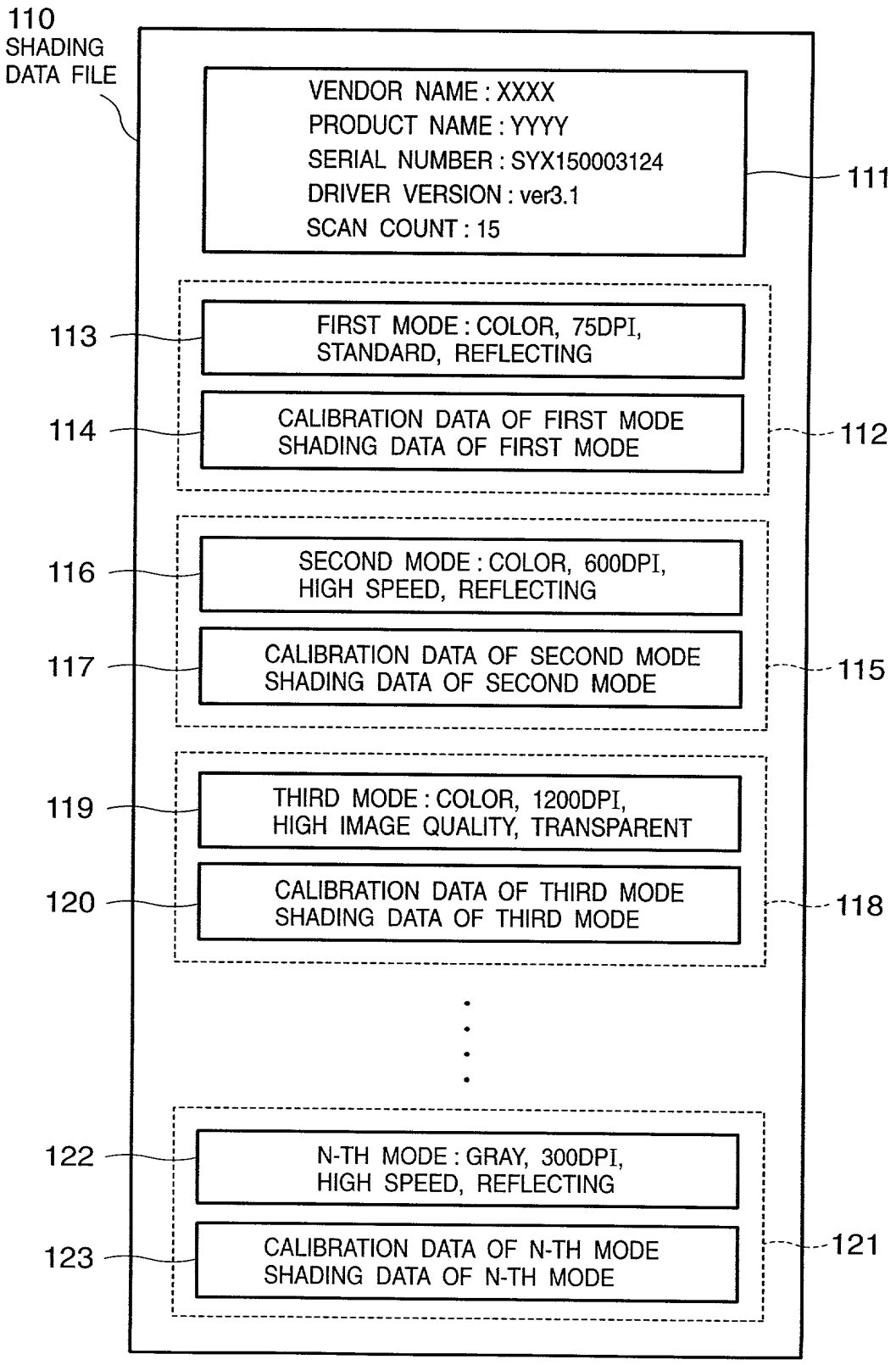


FIG. 12



JP2015150950A 2015.08.24

FIG. 13

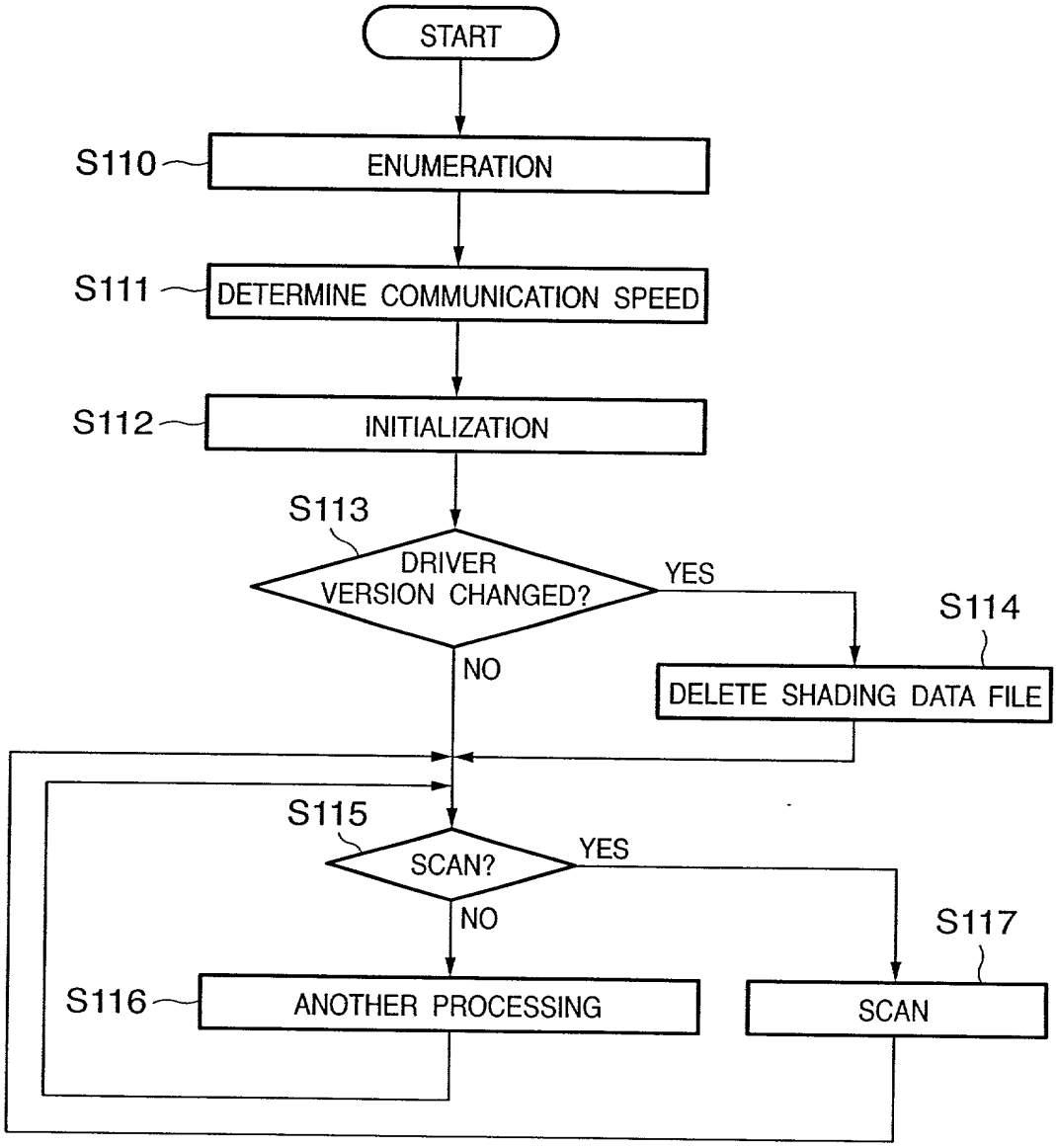

START
S110
ENUMERATION
S111
DETERMINE COMMUNICATION SPEED
S112
INITIALIZATION
S113
DRIVER VERSION CHANGED?
YES
S114
DELETE SHADING DATA FILE
NO
S115
SCAN?
YES
S117
NO
S116
ANOTHER PROCESSING
SCAN

FIG. 14

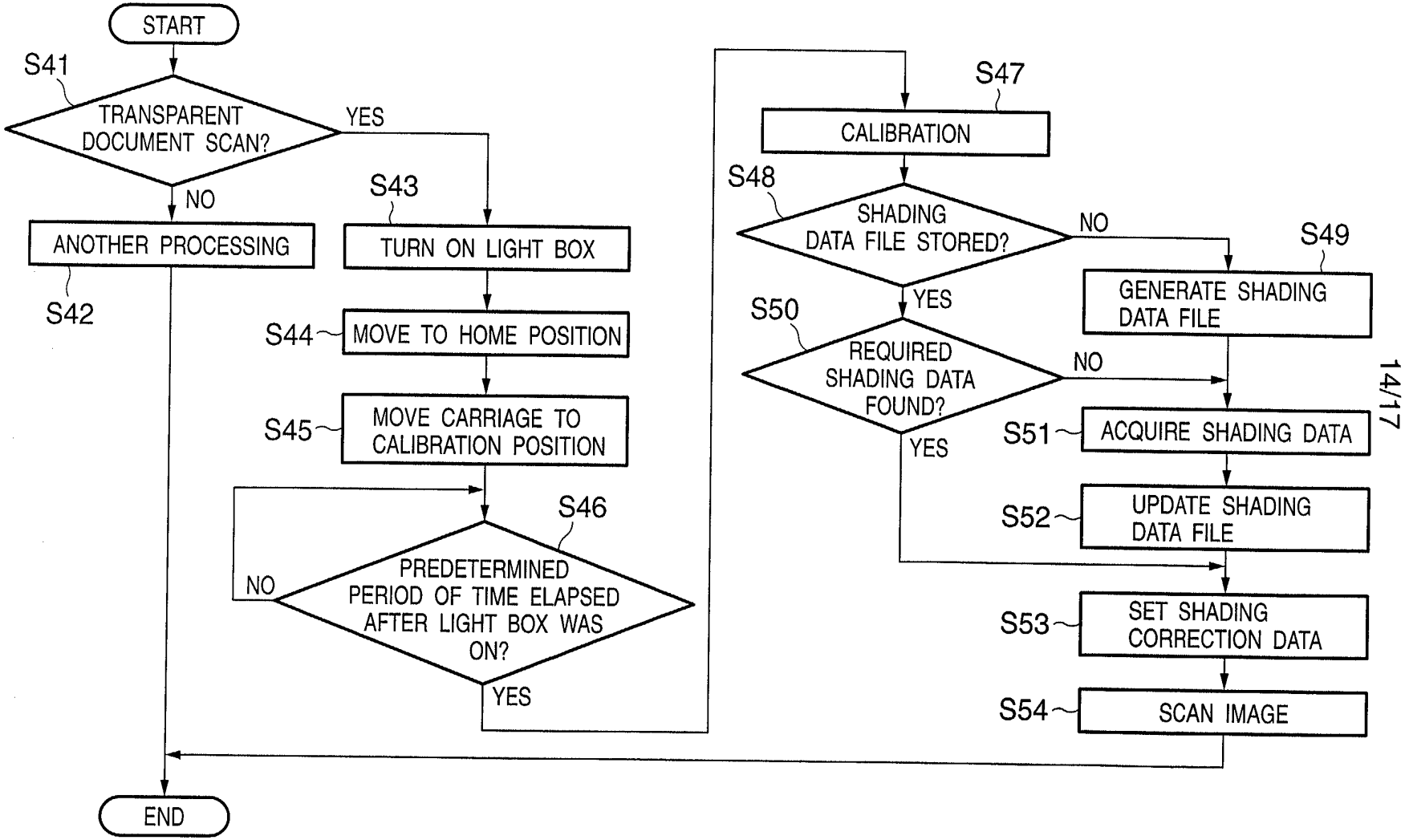

START
S41
TRANSPARENT DOCUMENT SCAN?
YES
NO
ANOTHER PROCESSING
S42
S43
TURN ON LIGHT BOX
S44
MOVE TO HOME POSITION
S45
MOVE CARRIAGE TO CALIBRATION POSITION
S46
PREDETERMINED PERIOD OF TIME ELAPSED AFTER LIGHT BOX WAS ON?
NO
YES
S47
CALIBRATION
S48
SHADING DATA FILE STORED?
NO
YES
S49
GENERATE SHADING DATA FILE
S50
REQUIRED SHADING DATA FOUND?
NO
YES
S51
ACQUIRE SHADING DATA
S52
UPDATE SHADING DATA FILE
S53
SET SHADING CORRECTION DATA
S54
SCAN IMAGE
END

FIG. 15

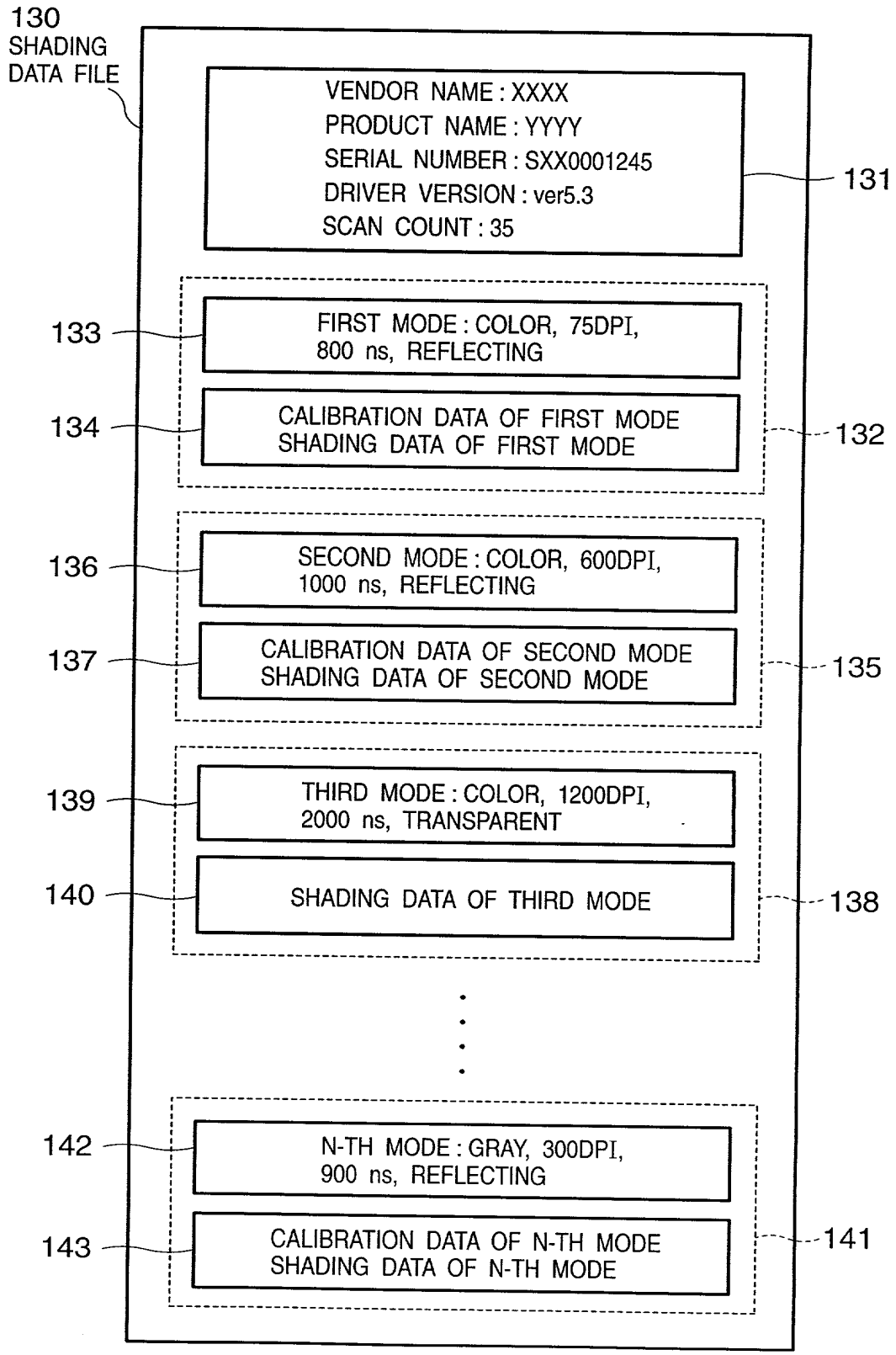

130
SHADING
DATA FILE
VENDOR NAME : XXXX
PRODUCT NAME : YYYY
SERIAL NUMBER : SXX0001245
DRIVER VERSION : ver5.3
SCAN COUNT : 35
131
133
FIRST MODE : COLOR, 75DPI,
800 ns, REFLECTING
134
CALIBRATION DATA OF FIRST MODE
SHADING DATA OF FIRST MODE
132
136
SECOND MODE : COLOR, 600DPI,
1000 ns, REFLECTING
137
CALIBRATION DATA OF SECOND MODE
SHADING DATA OF SECOND MODE
135
139
THIRD MODE : COLOR, 1200DPI,
2000 ns, TRANSPARENT
140
SHADING DATA OF THIRD MODE
138
142
N-TH MODE : GRAY, 300DPI,
900 ns, REFLECTING
143
CALIBRATION DATA OF N-TH MODE
SHADING DATA OF N-TH MODE
141

FIG. 16

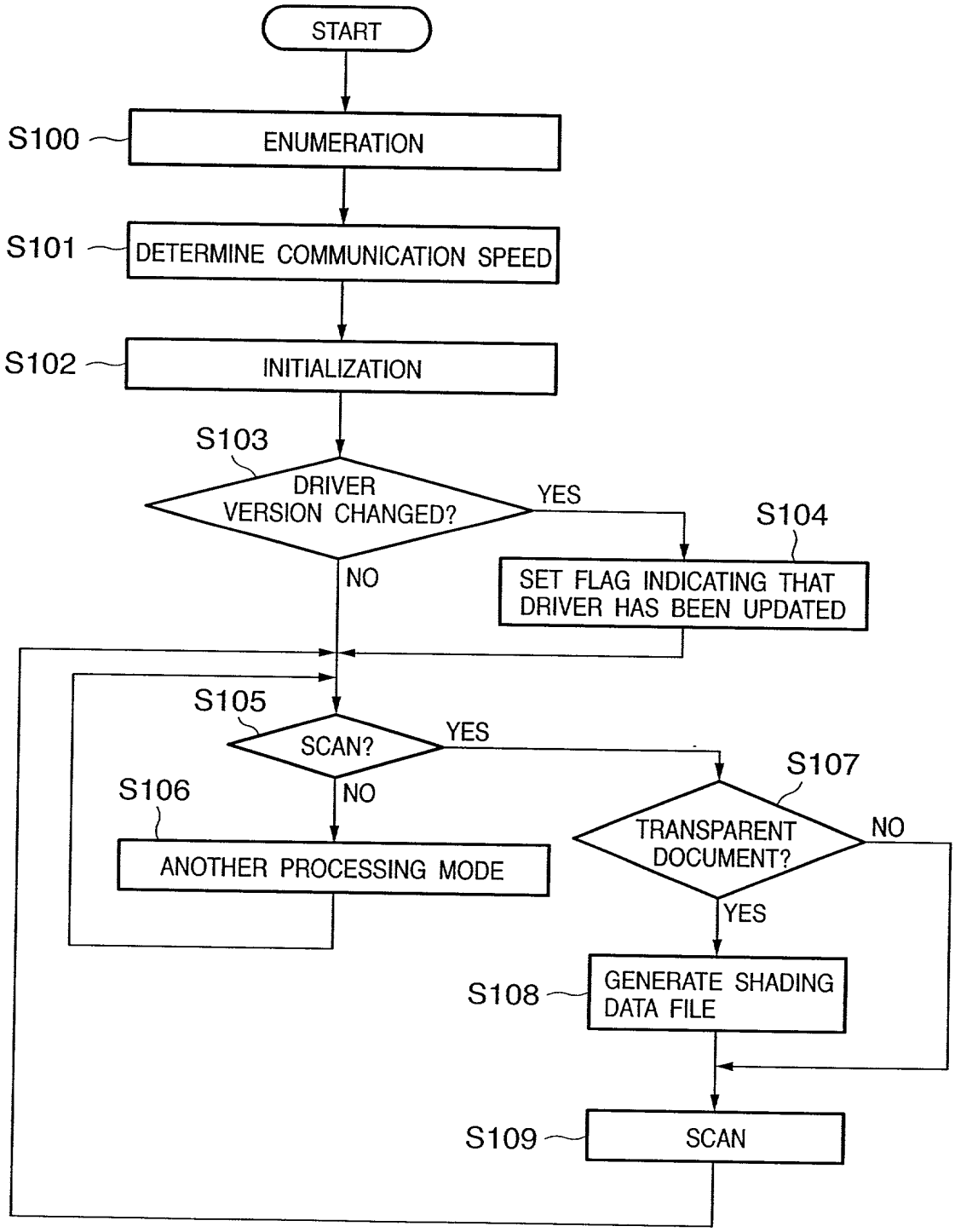
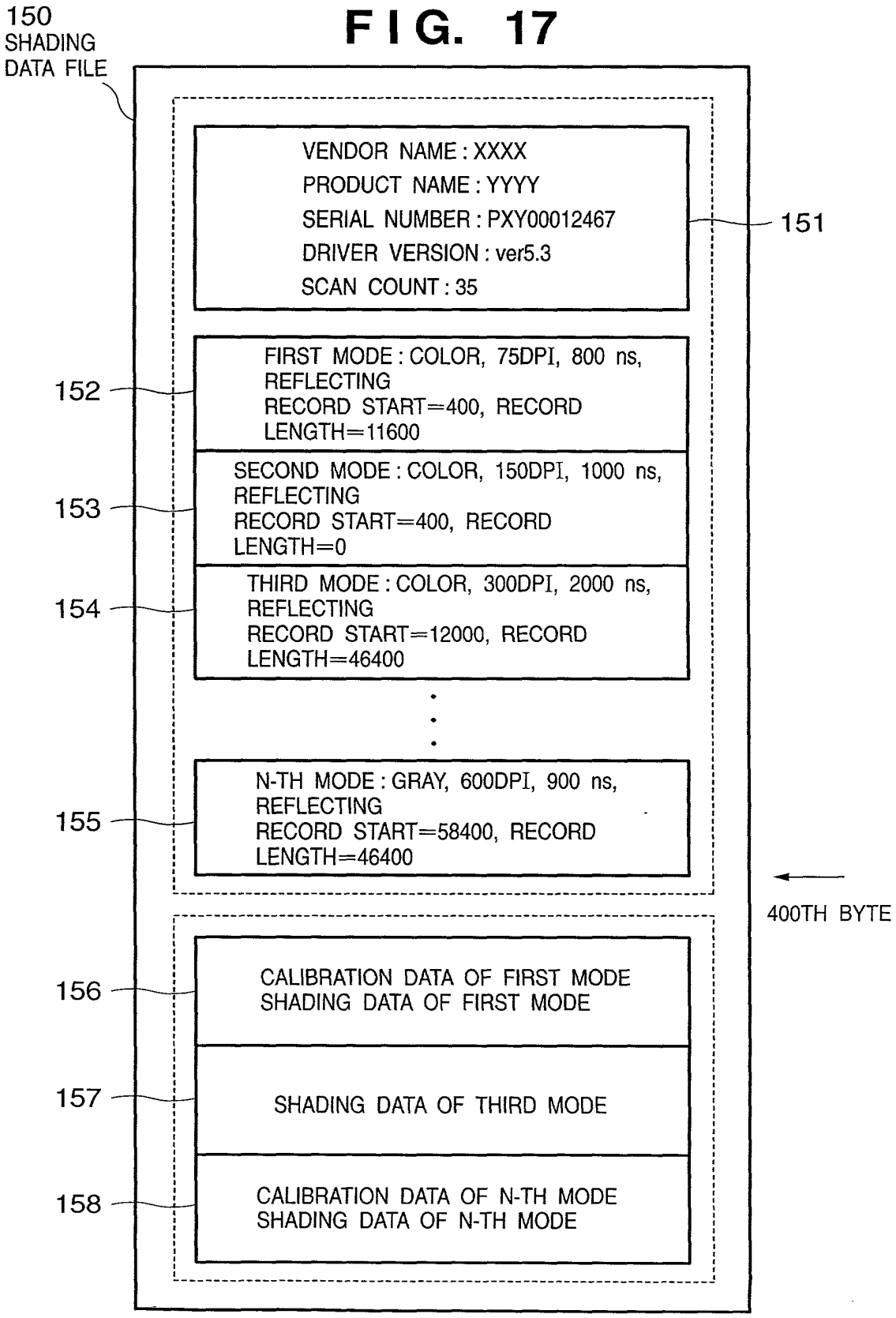

START
S100
ENUMERATION
S101
DETERMINE COMMUNICATION SPEED
S102
INITIALIZATION
S103
DRIVER VERSION CHANGED?
YES
NO
S104
SET FLAG INDICATING THAT DRIVER HAS BEEN UPDATED
S105
SCAN?
YES
NO
S106
ANOTHER PROCESSING MODE
S107
TRANSPARENT DOCUMENT?
NO
YES
S108
GENERATE SHADING DATA FILE
S109
SCAN

FIG. 17


150
SHADING
DATA FILE
VENDOR NAME : XXXX
PRODUCT NAME : YYYY
SERIAL NUMBER : PXY00012467
DRIVER VERSION : ver5.3
SCAN COUNT : 35
151
152
FIRST MODE : COLOR, 75DPI, 800 ns, REFLECTING
RECORD START=400, RECORD LENGTH=11600
153
SECOND MODE : COLOR, 150DPI, 1000 ns, REFLECTING
RECORD START=400, RECORD LENGTH=0
154
THIRD MODE : COLOR, 300DPI, 2000 ns, REFLECTING
RECORD START=12000, RECORD LENGTH=46400
155
N-TH MODE : GRAY, 600DPI, 900 ns, REFLECTING
RECORD START=58400, RECORD LENGTH=46400
400TH BYTE
156
CALIBRATION DATA OF FIRST MODE
SHADING DATA OF FIRST MODE
157
SHADING DATA OF THIRD MODE
158
CALIBRATION DATA OF N-TH MODE
SHADING DATA OF N-TH MODE